

## A SUGGESTED EXPLANATION WHY IN GENERAL FEMALE LEPIDOPTERA EMERGE LATER THAN THEIR MALE COUNTERPARTS

By M. HALSEY \*

Breeders of moths will have noticed that in general females emerge somewhat later than do their male counterparts. A suggestion as to why this occurs is quite simple. A female will start 'calling' soon after emergence, and if she fails to pair within a comparatively short time, will cease 'calling' and begin to lay infertile eggs. In theory then, males should hatch first and be, as it were, waiting for the females to emerge. If this be true, then one or both of the following must also be true. Firstly, the individual which emerges as a female moth must on average have taken longer in its metamorphosis from egg to moth than the males, and/or secondly, the eggs which will produce females must be laid on average after those which will produce males.

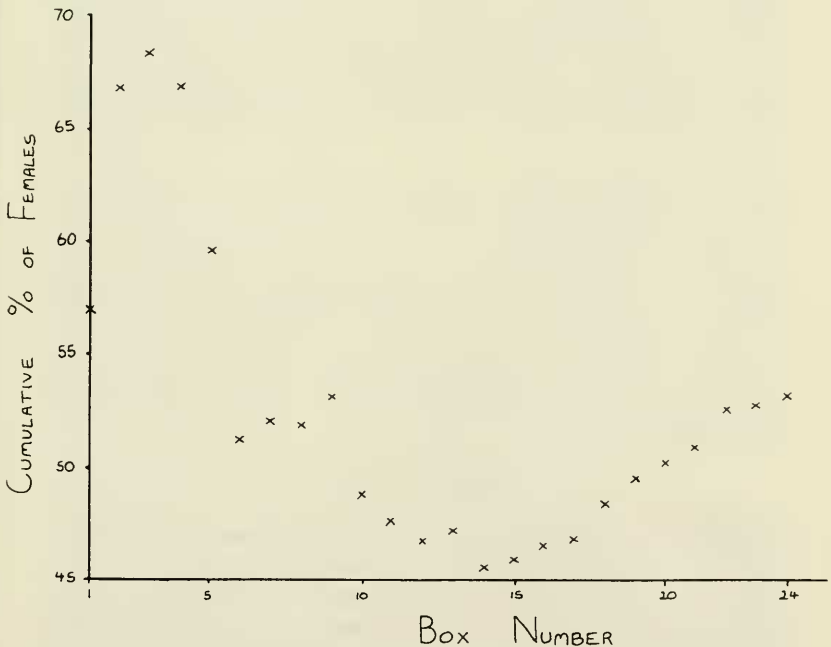


Fig 1 Graph showing 'Cumulative percentage' of females, plotted against the number of eggs laid at any time.

As an experiment to test the above, a freshly emerged female Early Thorn (*Selenia dentaria* F.) was selected and allowed to pair. The eggs she laid were collected in boxes of 10 in the chronological \*124 Boxley Road, Maidstone, Kent.

order in which they were laid. After 15 nights, 238 eggs had been collected in 24 boxes (i.e. box no. 1 contained the first 10 eggs laid, box no. 2 the next 10 and so on). Apart from a few losses, these were all reared and strict records kept of their development.

### Results

The reason suggested for females emerging later than the males in that they take longer to complete their metamorphosis, was first examined. By considering only those boxes in which all 10 eggs were laid the same night (and the date of that night) the time taken to metamorphose by each one of the moths in that box was arrived at. Thus, in this particular case there were 17 such boxes, and the development time was calculated (allowing for a few losses) for just under 170 moths. The results of this analysis showed that on average, there was no significant difference between the matamorphosis time for females and that for males.

The second possibility, that 'female eggs' are laid after 'male eggs', was examined by looking at the total percentage of females, after each successive box had been taken into account. The graph shows this 'cumulative percentage' of females, plotted against the number of eggs laid at any time (e.g. after 130 eggs had been laid, 47% of the moths obtained were female). As can be seen from the graph, after box 14, the percentage of 'female eggs' laid, steadily increased until the parent moth died. In fact, of the last 100 eggs laid, 61% produced females.

From the foregoing, I should tentatively conclude that, towards the end of her life, a female moth will tend to lay a greater proportion of 'female eggs'.

These results seem interesting enough to warrant a repetition of the experiment, and if anyone is interested in helping with similar experiments, I would be glad to hear from them.

I am grateful to James Halsey and Louise D'Arcy for help received; and to the Lord Rootes Memorial Fund, for the receipt of a grant, under which the project was originally performed at the University of Warwick.

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DISPERSAL FLIGHT OF THE MARSH CARPET: PERIZOMA SAGITTATA F. — In my garden stands a solitary plant of *Thalictrum flavum* L. On 23 July 1984, I was astounded and delighted to find thereon six eggs of the above. The nearest locality known to me for the plant lies some two miles distant. To be able to pinpoint such a tiny fragment of its foodplant within hundreds of acres of agricultural land and rural housing is a remarkable achievement. This is not an isolated occurrence as my friend, the late Vic Day had a similar experience in 1969, his garden being one mile from *sagittata*'s haunts in the local fen. — J. FENN, 4 Pearce's Close, Hockwold, Thetford, Norfolk IP26 4LU.